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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/835,491	04/17/2001	Kinya Ozawa	109137	5417
25944	7590	03/22/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			DUONG, THOI V	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/835,491

Applicant(s)

OZAWA ET AL.

Examiner

Thoi V Duong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1103.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 1203.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the Amendment filed January 06.

Accordingly, claim 1 was amended and claim 3 was cancelled. Currently, claims 1, 2 and 4-8 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bos et al. (USPN 6,141,074) in view of Numano et al. (USPN 6,313,898 B1).

As shown in Fig. 1, Bos discloses a pixel area 10 of an active matrix liquid crystal display (LCD) device (col. 1, lines 15-18), comprising:

first and second substrates, the first substrate 14 having a surface proximate the second substrate, the second substrate 16 being a surface proximate the first substrate; an alignment film (not shown) disposed at each of the surfaces of the first and second substrates (col. 4, lines 1-65);

liquid crystal 12 disposed between the first and second substrates;

wherein a pretilt angle due to the alignment film is 0.5° to 30° for liquid crystal having positive dielectric anisotropy (col. 6, lines 33-37);

wherein the alignment film includes one of silicon oxide and silicon nitride (col. 8, lines 14-26).

Although Bos does not disclose the structure of the LCD device in details, it would have been obvious to one having ordinary skill in the art that the active matrix LCD device of Bos comprises a plurality of scanning lines; a plurality of data lines; pixel areas defined by the scanning lines and the data lines; a switching element provided in each pixel area; and a pixel electrode provided in each pixel area.

Bos discloses a LCD device that is basically the same as that recited in claims 1 and 2 except for a relationship between a thickness of the liquid crystal and a space between the pixel electrodes.

As shown in Fig. 23 Prior Art, Numano et al. discloses that if a thickness of the liquid crystal disposed the first and second substrates is represented as d , and a space defined between the pixel electrodes is represented as L , a ratio d/L is at least 1 (col. 2, lines 8-17). Numano et al also discloses that the alignment film exists on both first and second substrates (col. 2, lines 4-5). Accordingly, the same alignment film is formed in space between body portions of pixel electrodes 12. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the LCD device of Bos with the teaching of Hattori by forming the two substrates and the pixel electrodes such that a ratio of a gap between the substrates and a spacing between the pixel electrodes is at least 1 for preventing the disclination caused by the lateral direction electric field (col. 1, lines 36-52).

4. Claim 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bos et al. (USPN 6,141,074) in view of Numano et al. (USPN 6,313,898 B1) as applied to claims 1 and 2 above and further in view of Miyatake et al. (USPN 5,092,664).

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The LCD device of Bos as modified in view of Numano et al. above includes all that is recited in claim 6 except for a projection type display apparatus employing such LCD device. As shown in Fig. 1, Miyatake discloses a projection type display apparatus, comprising:

a light source 15;

a light modulating device that modulates light emitted from the light source, the light modulating device including a liquid crystal device 17; and

a projection lens 18 that projects the light modulated by the light modulating device.

Fig. 2 shows a sectional view of the liquid crystal device 17 wherein alignment films 31, 32 are rubbed in order to align the molecules axes of the liquid crystal molecules at a pretilt angle. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the LCD device of Bos in the projection type display apparatus of Miyatake so as to obtain a display with high picture quality.

5. Claims 4, 5, 7, and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bos et al. (USPN 6,141,074) in view of Numano et al. (USPN 6,313,898 B1) as applied to claims 1 and 2 above and further in view of Ichikawa et al. (USPN 6,339,459 B1).

The LCD device of Bos as modified in view of Numano et al. above includes all that is recited in claim 4, 5, 7 and 8 except for a color projection type display apparatus

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employing such LCD device. As shown in Figs. 1A-1C, Ichikawa discloses a projection type display apparatus comprising:

a light source 1308;

a light modulating device that modulates light emitted from the light source, the light modulating device including the liquid crystal device 1302 that modulates light into color beams of red, green and blue display portions (col. 6, lines 3-49); and

a projection lens 1301 that projects the light modulated by the light modulating device.

Fig. 4 shows a LCD device comprising pixel electrodes 1326 of R, G, and B colors formed of Al (light-reflecting metal electrode) and a liquid crystal layer 1325 maintained in predetermined alignment by alignment layers (co. 8, lines 25-30).

Ichikawa also discloses in prior art that the LCD device will be used not only for the personal computers, but also for workstations and televisions for home use (col. 1, lines 11-23). Accordingly, by having the LCD device of Bos with color pixels, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ this device in the projection type display apparatus of Ichikawa so as to obtain a display with much more symmetric viewing angle distribution, good gray scale capability and very high contrast.

Response to Arguments

6. Applicant's arguments filed January 06, 2004 have been fully considered but they are not persuasive.

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Applicant argued that Numano fails to disclose that the display defects caused by disclination is prevented by the same alignment film formed in spaces between body portions of the pixel electrodes because Numano discloses a third alignment film formed about the intermediate region between the adjacent pixel electrodes whereby a mutually different distortion is given to the liquid crystal molecules, in addition to a first and second alignment film. That is, Numano discloses in Figures 1 and 2, third alignment films 13a and 19a. The Examiner disagrees with Applicant's remarks since the Examiner did not use Figs. 1 and 2 of Numano in the last office action, instead, Fig. 23 Prior Art of Numano was used. Although not shown in Fig. 23, Numano discloses that the alignment film exists on both the array (or first) substrate side and the counter (or second) substrate side (col. 2, lines 4-5). That is, the same alignment film is formed in spaces between body portions of pixel electrodes 12 to prevent the display defects caused by disclination.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



03/14/2004


ROBERT H. KIM
SUPERVISOR
EXAMINER
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